Section I. (Amendments to the Claims and Listing of Claims)

Please amend claims 6, 7, 8 and 10, as set out below.

1. (Previously Presented) A semiconductor process system adapted for processing of or with a material therein, said system comprising: a sampling region for the material; an infrared radiation source constructed and arranged to transmit an infrared radiation beam through the sampling region; a thermopile detector constructed and arranged to receive infrared radiation after the transmission of the infrared beam through the sampling region and to responsively generate an output signal correlative of said material; and a process controller arranged to receive the output of the thermopile detector and to responsively control one or more process conditions in and/or affecting the semiconductor process system.

2. (Original) The semiconductor process system of claim 1, wherein the material comprises a solid.

3. (Original) The semiconductor process system of claim 1, wherein the material comprises a fluid.

4. (Original) The semiconductor process system of claim 1, wherein the material comprises a liquid.

5. (Original) The semiconductor process system of claim 1, wherein the material comprises a gas.

6. (Currently Amended) ~~The semiconductor process system of claim 1,~~ A semiconductor process system adapted for processing of or with a material therein, said system comprising: a sampling region for the material; an infrared radiation source constructed and arranged to transmit an infrared radiation beam through the sampling region; a thermopile detector constructed and arranged to receive infrared radiation after the transmission of the infrared beam through the sampling region and to responsively generate an output signal correlative of said material; and a process controller arranged to receive the output of the thermopile detector and to responsively control one or more process conditions in and/or affecting the semiconductor process system, wherein the infrared radiation source comprises an infrared radiation lamp.

7. (Currently Amended) The semiconductor process system of claim ~~1~~ 6, wherein the infrared radiation lamp generates said infrared radiation beam in a wavelength range of from about 2 to about 4.6 μm.

8. (Currently Amended) ~~The semiconductor process system of claim 1~~ A semiconductor process system adapted for processing of or with a material therein, said system comprising: a sampling region for the material; an infrared radiation source constructed and arranged to transmit an infrared radiation beam through the sampling region; a thermopile detector constructed and arranged to receive infrared radiation after the transmission of the infrared beam through the sampling region and to responsively generate an output signal correlative of said material; and a process controller arranged to receive the output of the thermopile detector and to responsively control one or more process conditions in and/or affecting the semiconductor process system, wherein the infrared radiation source further comprises mirrors adapted to focus said infrared radiation beam.

9. (Previously Presented) The semiconductor process system of claim 8, wherein the mirrors are adapted to multipass said infrared radiation beam multiple times across the sampling region to enhance detection limit of said thermopile detector.

10. (Currently Amended) ~~The semiconductor process system of claim 1~~ A semiconductor process system adapted for processing of or with a material therein, said system comprising: a sampling region for the material; an infrared radiation source constructed and arranged to transmit an infrared radiation beam through the sampling region; a thermopile detector constructed and arranged to receive infrared radiation after the transmission of the infrared beam through the sampling region and to responsively generate an output signal correlative of said material; and a process controller arranged to receive the output of the thermopile detector and to responsively control one or more process conditions in and/or affecting the semiconductor process system, wherein the infrared radiation source generates said infrared radiation beam in a wavelength range of from about 2 to about 4.6 μm.